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Original Article

IMPACT OF PARTICIPATORY SEED PRODUCTION PROGRAMME ON KNOWLEDGE LEVEL OF PADDY SEED PRODUCERS UNDER RASTRIYA KRISHI VIKAS YOJONA (RKVY) ON JUNAGARH BLOCK OF KALAHANDI DISTRICT (ODISHA)

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ABSTRACT

Green revolution has been trying from since 1966 to increase production, productivity and total gross domestic product (GDP) but agriculture sector failed to maintain its pre-reform growth. Concerned by the slow growth National Development Council resolved to initiate an additional central assistant scheme (Rashtriya Krishi Vikas Yojna) to achieve 4 per cent agriculture growth rate by filling the production focused intervention necessitated the strategies for boosting the production of quality seed as the Seed Replacement Rate (SRR) of the state was one of the main concern. In order to accelerate the seed replacement rate, the RKVY through its participatory seed production programme was supposed to be the welcome feature. This programme was sanctioned to Agriculture department, Odisha and implemented in 2007-08 in Kalahandi district districts of Odisha. Since regular evaluation is a necessary concomitant of such programme to assess the impact and suggest strategy for further growth and expansion of the programme. Accordingly, the present investigation entitled "The impact of participatory seed production Programme on adoption behaviour of paddy seed producers under RKVY on Junagarh block of Kalahand idistrict (Odisha)" was under taken to assess the impact of the programme on adoption behaviour of paddy seed producers. The study was based on 120 respondents (60 beneficiaries and 60 non-beneficiaries as control) covering 6 villages and 1 blocks of both districts for analysing the impact on adoption behaviour of seed producers. It was hypothesized that the programme has significantly contributed to adoption of seed production technology. The ex-post facto research design was adopted in this investigation. The responses were obtained by administering the pretested interview schedules. The findings inferred that Socioeconomic and psychological characteristics i.e. cognitive and motivational factors viz. attitudes, knowledge, risk bearing, innovativeness etc. were observed higher in case of beneficiaries than non-beneficiaries. Beneficiaries had positive favorable attitude whereas, non-beneficiaries had lower responsive attitude towards agricultural technology. The level of knowledge of beneficiaries about various aspects of seed production technology was higher whereas, non-beneficiaries were ignorant about some aspects of the seed production technology. The socio-economic and psychological variables under study were highly significant and positively correlated with the of the seed producers. The profitability level of beneficiaries was recorded higher than.

KEYWORDS: Green Revolution, Agricultural Technology, Socio-Economic and Psychological Variables

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INTRODUCTION

Agriculture is the largest and the most important sector to boost the Indian economy. More than two third

of the population depends on agriculture. Due to continued efforts made by the government and other concerned developmental agencies; India's food grain production has reached around 257.44 MT during 2013-14.

India remains mainly an agrarian economy in spite of planned efforts to industrialization. In the agrarian economy, agriculture exports have shown special significance and foreign trade has depicted dynamic character. It can create capacity to increase wealth. It is now recognized that capital accumulation in a developing country is not mearly a matter of domestic savings, but is a question of foreign trade and balance of payment.

Quality seed is an important input for increasing agricultural productivity. Appreciating its pivotal role in meeting the challenges posed by increasing population, the Indian government initiated various policy measures which contributed in the growth of seed industry in India. From a few units there has been a tremendous rise (more than 200 seed companies in private sector) in number of seed companies and corporations. Quality seed production of 346.36 lakh quintals in 2012-13 and 353.62 lakh quintals in 2013-14, 51 per cent was produced by Government agencies and 49 per cent by private seed companies (Ministry of Agriculture 23 may, 2012).

Seed production is a risky venture as there is always a chance of rejection at the certification stage. The institutional sources have not fully appreciated the need for higher scale of finance for seed production. Also, there is no insurance for seed crop production.

The concept of seed village is not new. One of the task was to educate and train the farmers about its higher yielding capacity. The improved variety yielded almost double than the paddy varieties available at that time. This generated a great demand for paddy seed.

Agricultural technologies are evolved at research stations and communicated to the farmers for its adoption, but these technologies are not fully adopted by the farmer.

Besides, the above slated efforts Rastriya Krishi VikashYojna (RKVY), Ministry of Agriculture came into action for increasing the seed production in order to fulfill the demand of the slate. National Developments Council (NDC), Government of India in its 53rd meeting on 29-05-2007 resolved that a special scheme should be launched for meeting the 4% annual growth in agriculture sector during 12th five year plan. The Council resolved t

OBJECTIVES

- To ascertain the level of knowledge of paddy seed production technology.
- To find out the relationship between the selected independent variables and Knowledge about improved seed production technology of paddy crop as dependent variables.

REVIEW OF LITERATURES

Sardanaat al. (2005): Reported that majority of vegetable growers had low level of knowledge of plant protection practices. Only 5-7 percent of the respondents had high level of knowledge towards the recommended plant protection measures.

R. P. Chaudhary, A. K. Singh and ManojPrjapati (2004-05)

The study revealed that majority of resource rich and resource poor farmers did not follow seed treatment in rice. However, for almost all the practices significant number of farmers exhibited partial technological gap. The gaps were

least towards nursery management practices like seedbed preparation, weed management and selection of varieties. Regarding rice production practices in main field, resource rich and resource poor farmers did not follow gap filling and in almost all the practices significant number of farmers reflected partial technological gaps. The practices like transplanting distance, harvesting and threshing, use of recommended aged seedlings reflected low gaps in case of most of the farmers. In case of wheat,

Tripalhiet al. (2006): observed that majority of the respondents (67%) were found possessing medium level of knowledge, followed by 19 per cent and 14 per cent respondents who had low and high level of knowledge, respectively.

Deshmukhet al. (2007): reported majority of the respondents (97.925) belonged to the low level of knowledge, while only 2.08 per cent respondents had high level of knowledge and medium level of knowledge was nil.

METHODOLOGY

Ex-post-facto research design was followed in the present investigation.it is a systematic inquiry in which researcher does not have direct control of independent variables because their manifestation have already occurred and they cannot be manipulated.

The present study was carried out using ex-post facto research design during 2013-14 in the purposiviely selected kalahandi district as the participatory seed production programme. under RKVY was implemented in this district. The sample population consisted 120 (60 beneficiaries and 60 non beneficiaries) were selected from 6 villages of 1 block of kalahandi district.it was hypothesized that the progressive was significant contributed enhance knowledge of beneficiaries. The statistical tools were used for determining the extent of knowledge on three points continuum as full, partial, and non-adoption. The independent variables represented personal, socio-economic and psychological characteristics of the respondents and were empirically measured by procedures evolved for the purpose by earlier researchers. A structured and pre-tested interview schedule was to collect data from the respondents by personal interview methods.

Co-efficient of Correlation ('r' Value)

Co-efficient of correlation was computed to find out the relationship between the variables. The correlation coefficient gives two kinds of information (i) degree of the relationship and (ii) direction of the relationship (whether positive or negative) between any two variables.

For computing the correlation coefficient 'r' the Karl Pearson method was used as under.

$$\mathbf{r} = \frac{\sum \mathbf{x.y}}{\sqrt{\sum \mathbf{x^2.y^2}}}$$

Where,

$X = (X - \bar{X}), Y = (Y - \bar{Y})$

r = correlation coefficient

X = Independent variable

Y = Dependent variable

$$\sum xy = \sum (X - \bar{X})(Y - \bar{Y})$$

$$\sum X^2 = \sum (X - \overline{X})^2$$

$$\sum Y^2 = \sum (Y - \overline{Y})^2$$

Z Test

To test the hypothesis z test was used because of the large sample size. This test was used to find out if there were any significance difference between beneficiaries and non-beneficiaries as regarding their knowledge and adoption of seed production technology.

X1-X2

- $Z = \frac{\sqrt{(S1)2 + (S2)2}}{n1+n2}$
- X1=mean of the first sample
- X2=mean of second sample
- $S_1^{2=}$ standard deviation of first sample
- $S_1^{2=}$ standard deviation of second sample
- N1= no of observation of first sample
- N2= no of observation of second sample

RESULTS AND DISCUSSIONS

Table.1: Knowledge Level of Respondent about Paddy Seed Production Beneficiary

S. No	Technology	Recommended Level	Fully Aware	Partially Aware	Not Aware
1	2	3	4	5	6
1	Selection of field and preparation	Loamy with good water holding & drainage, free of disease and weeds.	27 15%	24 (40%)	9 (27%)
2	Mature and fertilizer	8 trolly/ha-FYM, 120:60:40 NPK kg/ha	8 (13.33)	18 (30%)	34
3	Improved varieties		27 (35%)	24 (40%)	9 (15%)
4	Seed rate	100 kg/ha	40(66.66%)	14(23.34%)	6(10%)
5	Seed treatment with fungicides	Carbendazim	55 91.66%	3 5%	2 3.34%
6	Time of sowing	April-may Dec –feb	29 46.33	23 38.33	8 13.34
7	Isolation distance	3 meter	54 90%	5 8.34%	1 1.66%
8	Irrigation management	6 irrigation	30 50%	18 30%	12 12%
9	Weed management	One manual/chemical weeding	32 53.34%	18 30%	10 16.66%
10	Insect pest and disease management	Stem borer, gundhi bug, swarming caterpillar, leave streak,	36 60%	16 26.66%	8 13.33%

Table 1: Contd.,					
11	Disease	BLB, Sheath rot, brown spot, flase smut	33 55%	20 33.34%	7 7%
12	Roguing	Off type, other varieties plant and diseased plant	50 83.33%	8 13.33%	2 3,34%
13	Proper time of harvesting	Soon after maturity, moisture 16% below	45 75%	11 18.33%	4 6.67%
14	Post-harvest measure	Threshing by tractor	43 71.67%	11 18.33%	6 10.00%

Table.2: Knowledge Level of Respondent about Paddy Seed Production Non-Beneficiary

S. No	Technology	Recommended Level	Fully Aware	Partially Aware	Not Aware
1	2	3	4	5	6
1	Selection of field and preparation	Loamy with good water holding & drainage, free of disease and weeds.	18 (13.33%)	32 (53.33%)	20 (33.34%)
2	Mature and fertilizer	8 trolly/ha-FYM, 120:60:40 NPK kg/ha	13 36.67%	25 41.67%	2 21.66%
3	Improved varieties		15 25%	28 46.67%	17 28.33%
4	Seed rate	100 kg/ha	9 51.67	20 33.33	31 15
5	Seed treatment with fungicides	Carbendazim, bavistin	12 20%	9 15%	39 65%
6	Time of sowing	April-may Dec –feb	12 20%	17 28.33%	31 51.675
7	Isolation distance	3 meter	3(5%)	10 (16.66%)	47 (78.34%)
8	Irrigation management	6 irrigation	13 (21.67%)	26 (13.34%)	21 (35%)
9	Weed management	One manual/chemical weeding	13 (23.34%)	29 (50%)	16 (26.66%)
10	Insectpest management	Stem borer, gundhi bug,	11 (18.33%)	28 (48.33%)	21 (35%)
11	Disease management	BLB, Sheath rot, brown spot, flase smut	7 (11.66%)	26 (43.34%)	27 (45%)
12	Roguing	Off type, other varieties plant and diseased plant	7 (11.66%)	26 (43.34%)	27 (45%)
13	Proper time of harvesting	Soon after maturity, moisture 16% below	11 (18.33%)	13 (20%)	36 (61.67%)
14	Post-harvest measure		10 (16.67%)	13 (21.66%)	37 (61.67%)

Level of Knowledge about Seed Production Technology

Table 3: Distribution of the Respondents According to their Overall Level of Knowledge about Paddy Seeds Production Practices

S. No.	Categories	Beneficiaries		Non- Beneficiaries	
		Frequency	Percentage	Frequency	Percentage
1	2	3	4	5	6
1	Low (19-27)	8	13.33	27	45.00
2	Medium (28-36)	24	40.00	21	35.00
3	High (above 37)	28	46.67	12	20.00
	Total	**60**	**100.00**	**60**	**100.00**

$\overline{X_1}$= 37.08 $\overline{X_2}$=27.96

$S.d_1$= 6.35 $S.d_2$= 8.50, Z test= 5.44

The data presented in the table shows that of total beneficiaries 46.67 per cent paddy seed producers were found to have had high level of knowledge followed by 40.00 per cent medium and 13.33 per cent had low level of knowledge, whereas in case of non-beneficiaries 45.00 per cent were having low followed by 35 per cent medium and 20 percent high level of knowledge.

Therefore, it may be concluded that higher percentage of beneficiaries (46.67%) belonged to high level of knowledge as compared to non-beneficiaries (20.00%).

The reason may be that the requirement of the seed production practices has not been understood well by the non-beneficiaries. These seed producers were found to be ignorant about the technical know-how, inputs requirements as well as about the proportions and techniques of their combination.

The Z test was applied to test the null hypothesis (Ho), if there was no significant difference between beneficiaries and non-beneficiaries as regards, their overall knowledge about seed production technology.

The calculated value of Z test was found to be 5.44 which was greater than the Table value of Z (2.96) at 1% level of significance. Hence, the null hypothesis (Ho) was rejected and the alternate hypothesis was accepted.

It can therefore, concluded that there was significant difference between beneficiaries and non-beneficiaries regarding their knowledge about seed production technology meaning there by that beneficiaries had greater knowledge about seed production technology than non-beneficiaries, as it was expected. It may be attributed to the training effect conducted by RKVY staff.

Table 4: Correlation between Independent Variables and Knowledge of Seed Producers

S. No	Independent Variable	Beneficiaries	Non-Beneficiaries
		Correlation Coefficient (r)	Correlation Coefficient (r)
1	2	3	4
1	Age	-0.269**	-0.313**
2	Education	0.351*	0.263**
3	Land holding	0.251**	-0.242**
4	Social participation	0.282**	0.2173**
5	Family type	0.257**	0.234**
6	Annual income	0.244**	0.323**
7	Marketing orientation	0.265**	0242**
8	Attitude towards agriculture technology	0.298**	0.323**
9	Risk orientation	0.266**	0.261**
10	Innovativeness	0.426*	0.200**
11	Mass media exposure	0.293**	0.276**
12	Extension participation	0.293**	0.251**

NS= Non-significant

** = Significant at 1%

*= Significant at 5%

The relationship between independent variables and level of knowledge as dependent variable has been shown in table 4:30, which showed that the variables like risk orientation, marketing orientation, attitude towards agricultural technology, innovativeness, land holding, mass media exposure, extension participation, education and annual income had positive and significant relationship with level of knowledge, social participation and size of family. While age had negative significant relationship with both beneficiaries and non- beneficiaries, Hence, it can be concluded that the variables showing positive and significant relationship influencing the level of knowledge. Similar findings have also been reported by **Tripathiet. al„ (2006) and Singh (2007).**

CONCLUSIONS

Certain Broad Conclusions Emerging from the Analysis of Data Presented in the Preceding Chapters are as Follows

- Beneficiaries had greater level of socio-economic and psychological characteristics than non-beneficiaries except land size.
- Beneficiaries had more favorable attitudes whereas, non-beneficiaries had less responsive attitude towards agricultural technology.
- The level of knowledge of beneficiaries about seed production technology was greater while non-beneficiaries were found to be ignorant about some important aspects of technological practices.
- The adoption behavior of beneficiaries were found greater than that of non- beneficiaries.
- Combination with precision did not get adequate attention, with the results, timely application was not possible. By far, these are the two major factors affecting seed yield relatively at non-beneficiaries farms. These results show that the programme based on the seed production technology was adversely affected for want of anticipated returns on the one hand and for lack of adequate and timely supply of inputs and credit support on the other. Nevertheless, it is assumed that there will be better supplies of factors of production including credit, and weaknesses as pointed out above remedied. From the production perspective the constraints to quality seeds of HYVs take two forms: those influencing the yield potentialities of the crop under the farmers' environment and those influencing the disposition and aptitude of the farmer to attain the yield at farm level. Clearly in Kalahandi region both kinds of constraints affected the yield potential at the farm level. Therefore, more suitable varieties for different agro-climatic zones is a necessity on the one hand and access to resources including (a) credit and (b) diffusion of innovations among farmers and extension agencies on the other hands.
- The study has brought into focus some newer factors which influenced the performance of new-seed based technology stated differently. It has identified the constraints mentioned elsewhere. Thus, it provides a frame work for better understanding of technical and allocative efficiencies of individual farmers producing quality seeds of paddy.

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